Office of
Aeronautics and
Space
Technology

HUMANS IN SPACE

With Details on

EVA/SUIT and SPACE HUMAN FACTORS

Presentation to

" Technology for Future NASA Missions"

An AIAA/NASA OAST Conference

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September 13, 1988

OBJECTIVES OF BASE RESEARCH & TECHNOLOGY

OAST

- Provide a technology for intelligent operator interfaces to meet broad NASA mission requirements

- Develop a new generation of high performance space suits, gloves, Portable Life Support Systems, and end effectors to meet requirements of advanced NASA missions

- Provide technology options and selected demonstrations to aid decision makers

EVA/SUIT PROJECT OBJECTIVES

OAST

- Determine technology requirements and capabilities for:

  ...SUIT ...PORTABLE LIFE SUPPORT SYSTEM (PLSS)

  ...GLOVES & END EFFECTORS ...MOBILITY AIDS

  ...TOOLS ...INFORMATION AND CONTROL INTERFACES

  ...LOGISTICS SUPPORT

- Develop technology for above which provide levels of protection, work efficiency, reliability, maintainability, regenerability (PLSS), and mobility for PATHFINDER missions

EVA/SUIT PROJECT PRODUCTS

OAST

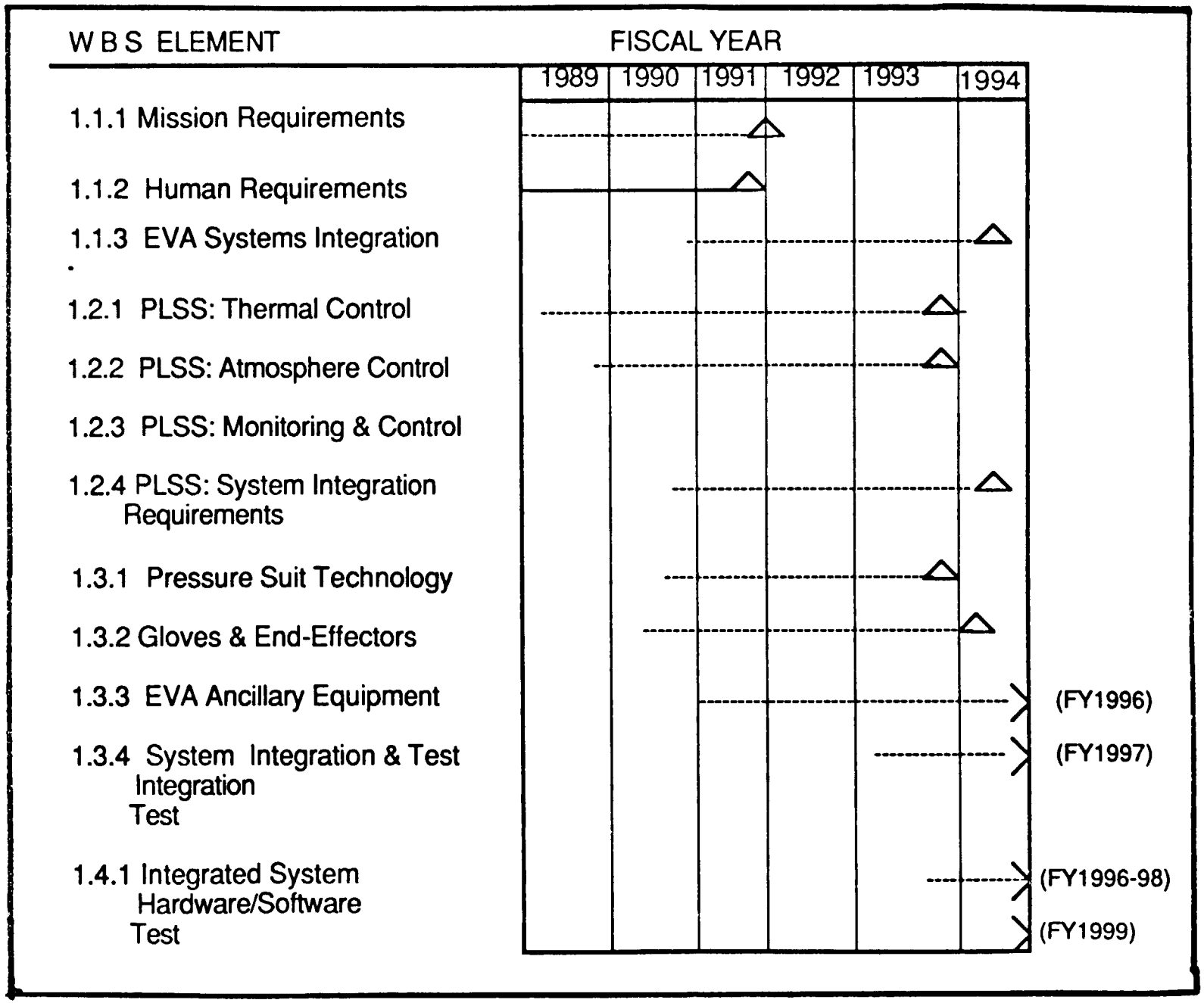
- Technology components, such as.....MATERIALS ...JOINT DESIGN ...COATINGS ...WEIGHT REDUCTION ...WASTE MANAGEMENT METHODS ...CONTROL SYSTEMS

- Experimental version of suit, PLSS components, gloves, and end effectors

- Functional performance requirements for suit, PLSS, gloves, end effectors, tools, mobility aids and interfaces

- Demonstrations and tests of selected technologies

SCHEDULE FOR EVA/SUIT PROGRAM



EVA/SUIT PROJECT

OAST

- NASA Centers and Points of Contact:

  Ames Research Center...Dr. Bruce Webbon, Code FL

  Langley Research Center...Mr. J. Hatfield, Code 9300

  Johnson Space Center...Mr. A. Behrends, Code EC3

- BUDGET FY 1989 - 1994.....($K)

FY1989	1990	1991	1992	1993	1994
$1,000	$2,500	$6,000	$8,000	$9,000	$10,000

SPACE HUMAN FACTORS OBJECTIVES

OAST

- Provide a technology base to extend or enhance human's unique capabilities to solve new problems, plan for contengencies, make sense of unfamiliar situations and process information creatively

- Meet requirements for human-machine (i.e., systems, robotics, teleoperations) compatibility

- Provide systems methods, design guidelines, tools and data bases to meet mission requirements

SPACE HUMAN FACTORS PRODUCTS

OAST

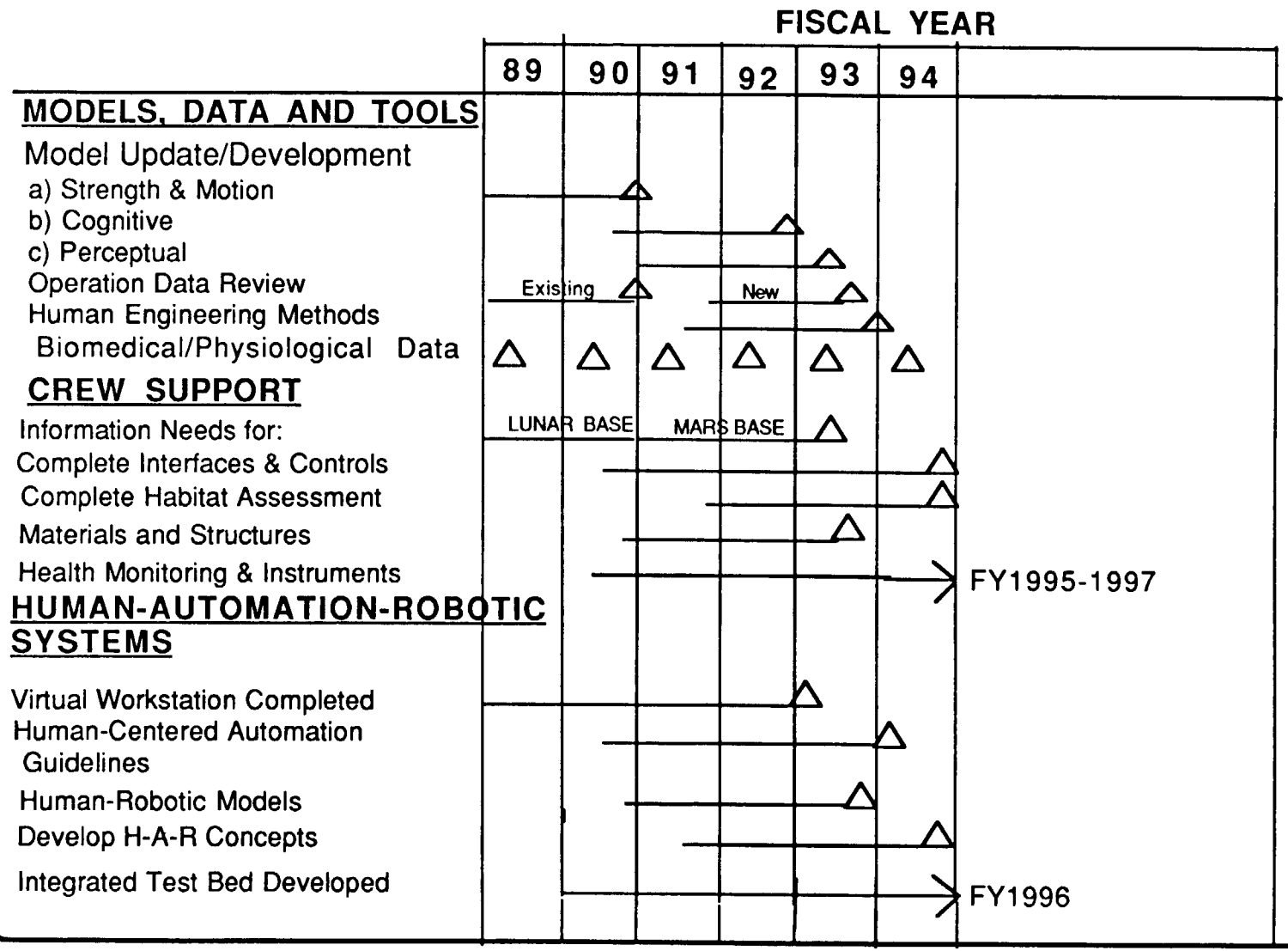
- TOOLS....such as systems design methods, design guidelines for human-machine interfaces & systems, data and data bases

- TECHNIQUES....for defining and meeting crew requirements for information display and control, living and working productively in habitats and in spacecraft, and for using all available resources

- METHODS....for enhancing human capabilities such as virtual workstations, teleoperation interfaces for human-robotic interactions, and computer-based operator aids

PATHFINDER

SPACE HUMAN FACTORS



August 1988

SPACE HUMAN FACTORS PROJECT

OAST

- NASA Centers and Points of Contact:

  Ames Research Center...Dr. M. Shafto, Code FL

  Langley Research Center...Mr. J. Hatfield, Code 9300

  Johnson Space Center...Mrs. B. Woolford, M-SD

- BUDGET FY 1989 - 1994.....($K)

FY1989	1990	1991	1992	1993	1994
$750	$1,500	$4,000	$7,000	$8,000	$10,000